

INTERNET DOCUMENT INFORMATION FORM

A . Report Title: 1998 Air Force Congressional

B. DATE Report Downloaded From the Internet 3/17 /98

Report's Point of Contact: (Name, Organization, Address, Office Symbol, & Ph #): Secretary of the Air Force Pentagon
(703) 695-0137

D. Currently Applicable Classification Level: Unclassified

E. Distribution Statement A: Approved for Public Release

F. The foregoing information was compiled and provided by:
DTIC-OCA, Initials: MM **Preparation Date:** 3/18/98

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DTIC QUALITY INSPECTED 4

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1998

Air Force

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Issue Papers

Foreword

This document contains information papers on 17 priority Air Force programs that are central to accomplishing our Air Force mission to defend the United States through control and exploitation of air and space. Each of these papers briefly describes a program, explains its contribution to the Air Force mission, and outlines the program's current status.

We hope that you use this product to better your understanding of these key issues as you meet and speak with Members of Congress and local civic leaders. We look forward to working with you in achieving our common goal of providing a strong national defense through the execution of these programs.

Additional information on the issues contained in this document and other Air Force programs is on the Air Force Link, the official Air Force home page on the World Wide Web, at <http://www.af.mil>. This site provides subject search capability as well as access to other sites through the use of a links icon.

We hope you find this product useful and welcome your feedback on ways to improve it to better meet your needs. Please direct any questions or suggestions you may have to the Congressional Action Division, SAF/LLX, 1160 Air Force Pentagon, Washington, DC, 20330-1160 or call (703) 695-0137.



LANSFORD E. TRAPP JR.
Major General, USAF
Director, Legislative Liaison

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Acquisition Reform

Key Messages

The Air Force is continuing to set the standard for acquisition reform. Our reform efforts have established a mechanism for advancing positive change within our weapon system programs that focus on business practice improvements, more efficient delivery of top performance systems, and reducing infrastructure to include smaller acquisition staffs. The Air Force acquisition and sustainment leadership have joined together to embark on a shared vision and commitment toward a strategic business plan which will move the acquisition and sustainment communities toward better business practices, continuous process improvement, and alignment of resources needed to provide operational capability to the warfighter in the most efficient manner possible.

Discussion

We are now taking the necessary steps to make sure acquisition reform becomes the "norm" and is instilled in every process we use. The Air Force is accomplishing this by developing strategies to achieve a common vision; "improving acquisition and sustainment performance while reducing cost". These strategies are based on:

Using "best value" procurement for all products and services - making affordability a Key Performance Parameter

Exploiting new technologies in development, sustainment and test

and increasing the use of modeling and simulation across the full spectrum of activities - reducing cycle time

Implementing Integrated Weapon System Management

Accelerating movement toward alignment with commercial practices, and accounting and management systems which allow us (DoD & AF) to take full advantage of what has and is currently taking place in the commercial sector - reducing life cycle cost

Investing thousands of hours on training for in-house personnel and industry (offsites, CEO conferences, Acquisition Reform Stand Down Days)

Getting the acquisition cycle within the technology cycle

Acquisition Reform Status

The key Air Force leaders responsible for accomplishing and supporting acquisition and sustainment in support of warfighter systems and services have established a Senior Business Leadership Group (SBLG). This group is the guiding coalition leading the cultural change necessary to institutionalize acquisition reform within the Air Force. We the Air Force acquisition and sustainment community have made a firm commitment to establish performance targets, track resources, and hold ourselves accountable to those targets. Reducing life cycle cost and cycle time are the keys to reaching our objectives, and will challenge us to find innovative and cost effective ways to do business. We have laid the foundation for improvement through acquisition reform and focused logistics, but we must now build on that foundation to establish the framework for tangible results.

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Airborne Laser

Key Messages

The Airborne Laser (ABL) will play a vital role in the nation's theater missile defense (TMD) strategy. Under the TMD strategy, the Department of Defense is developing a joint, layered defense architecture against theater ballistic missile (TBM) attack. The ABL will be the primary weapon used to attack TBMs during their boost phase, destroying them early in flight before their warheads have an opportunity to separate from the boost vehicle. Under this scheme, the warheads and destroyed missile components may fall on enemy territory, making the aggressor's nation vulnerable to the effects of the warhead they employed. As such, the ABL will provide a strong deterrent against the use of weapons of mass destruction. ABL offers revolutionary warfighting capability, taking advantage of existing high energy laser and adaptive optics technology to field a flexible, robust, long-range, and affordable weapon system.

Program Description and Key Points

The ABL is a rapid, self-deployable, long-range, airborne laser weapon ready for immediate employment upon arriving in theater. The program will integrate a multi-megawatt Chemical Oxygen Iodine Laser into a Boeing-747 aircraft to kill boosting TBMs at ranges in excess of several hundred kilometers. It will autonomously detect these threats with on-board infrared sensors, track them with highly accurate, low-power lasers, and fire its high-energy laser to destroy the missile. The high-energy laser beam control system, which uses adaptive optics and fast steering mirrors, will compensate for atmospheric effects and aircraft movement. Prior to detection of a boosting TBM, ABL will accept cues

from other theater sensors to better posture itself for the engagement. The ABL will provide missile flight data to include estimated launch and impact points to other TMD architecture systems via an onboard communications suite. The ABL will have a salvo engagement capability, carrying enough chemical fuel to destroy 20 to 40 enemy missiles before refueling.

Contribution to Air Force Core Competencies

The Airborne Laser is an essential component in the Air Force capability to gain and maintain *Air and Space Superiority*. It fills a critical portion of the layered TMD architecture by attacking boosting TBMs. ABL will support Air Force efforts to provide *Rapid Global Mobility* forces to the CINCs. From its base in the continental U.S., the large 747-400 airframe carries all ground support, laser fuel, and support personnel needed to provide a rapid theater ballistic missile defense for deploying troops. The ABL also complements our *Precision Engagement* capability through precise, long-range detection, tracking, and targeting of boosting TBMs, then destroying them using its high energy laser. Finally, ABL contributes to gaining and maintaining *Information Superiority* using its onboard sensors and information systems to provide relevant TBM information to other components of the TMD architecture. ABL is being designed to integrate into the *Agile Combat Support* structure. ABL's logistics support concept will take full advantage of the extensive worldwide commercial support structure and maximize use of existing commercial and military hardware and software.

Discussion

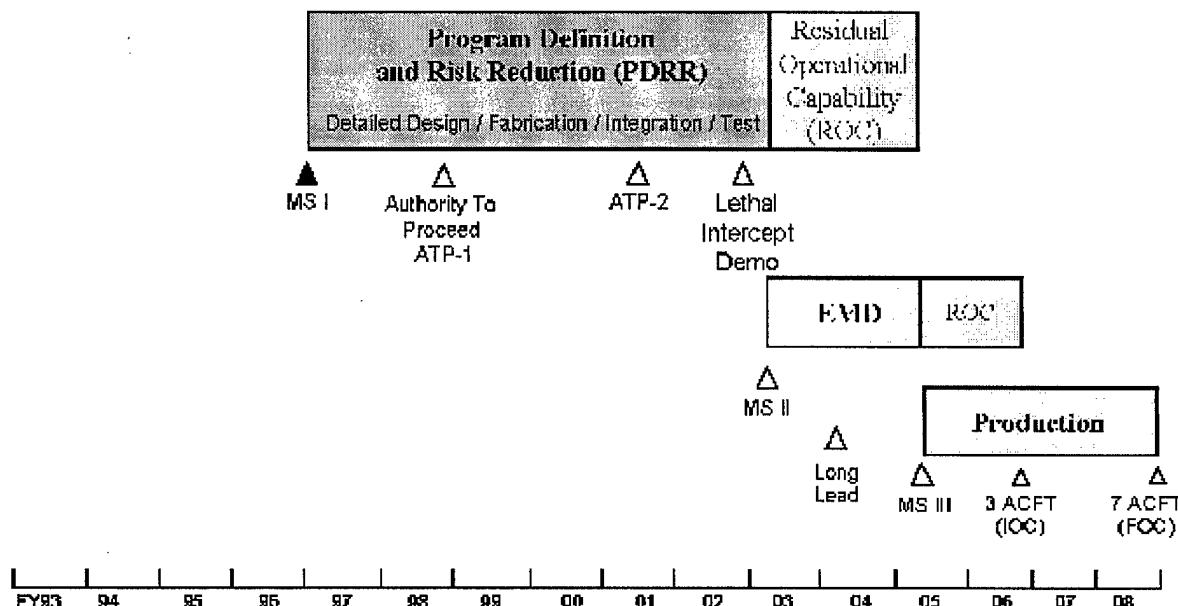
The ABL is a revolutionary weapon system that can dramatically alter future battles. Its unique counter air capabilities to destroy TBMs during the boost phase will kill a significant fraction of TBMs and thin the TBM threat for midcourse and terminal TMD systems. Furthermore, it will provide launch point and impact point predictions, which will enhance the other TMD systems and compliments the F-22 and JSF efforts to destroy TBMs and their support equipment on the ground prior to launch. ABL will help ensure our nation's military forces, and those of our allies, will operate independent of theater ballistic missile attack.

Air Combat Command will operate ABL from a continental U.S. base and will rapidly deploy it around the globe to arrive in theater, combat ready. Seven aircraft are currently planned; five aircraft are required to support two high-altitude Combat Air Patrol (CAP) orbits. At any given time, two aircraft will be on CAP, two aircraft will be preparing to arrive on CAP, and one aircraft will be on ground alert. The remaining aircraft will be allocated for training and/or depot maintenance. The joint forces air component commander will locate ABL orbits based on the threat, rules of engagement, weather conditions, and intelligence information. Inflight refueling and rotation of aircraft will provide continuous 24-hour coverage of potential TBM launch sites. Normal station time is 12 hours, but ABL can maintain station for up to 22 hours.

Program Status

The ABL program is an ACAT ID, Major Defense Acquisition Program in the Program Definition and Risk Reduction (PDRR) phase of its acquisition cycle. The Air Force awarded a \$1.1 billion, 74-month contract to Boeing in November 1996. The program is event driven and structured to progressively address major program risks before major funding commitments. The integrated program schedule illustrates the 11-year research and development effort followed by a short production run. The research and development costs total \$2.5 billion, and production costs are estimated to be \$3.7 billion in then-year dollars.

Concept Design
Technology Demo



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Bombers

Key Messages

With their global range, large payloads and immediate response capability, heavy bombers are core components of our nation's warfighting strategy. Our bomber forces can employ while other forces deploy. Their ability to be the "first to the fight" allows bombers to destroy time-critical targets, attrit enemy forces rapidly, decisively halt advancing enemy forces, and prepare the battlefield for the counter attack. As America reduces the number of military forces permanently stationed overseas, our power projection capabilities will be even more important to the Joint Force Commander and our national leaders. Whether employing from CONUS as a stand-alone force or as a part of an Air Expeditionary Force, the bomber fleet projects power rapidly, precisely and globally, providing lethality with large payloads of direct-attack and stand-off weapons.

Today, our bomber force provides a conventional deterrent option for the nation while continuing to maintain nuclear capability. Nuclear deterrence remains a bedrock requirement of national security, and the long-range bomber force provides a crucial leg of the nuclear Triad with our B-2 and B-52 fleets.

Program Description and Key Points

B-1: Originally designed as a nuclear weapons delivery platform, the B-1, now a conventional-only platform, is undergoing the Conventional Mission Upgrade Program (CMUP). Conventional weapons and defensive system upgrades significantly improve the B-1's lethality and survivability, allowing it to respond on the first day of a conflict. Carrying 84 general purpose 500-pound bombs or 30 cluster bombs, the B-1 can help halt an enemy advance during the initial stages of a conflict while other forces deploy.

The B-1's conventional capability will continue to increase through the time-phased CMUP modernization effort. Programmed reliability and maintainability improvements, such as computer

avionics and defensive system upgrades, will make the B-1 more affordable to operate. Likewise, advancements in B-1 weapons' carriage will significantly improve the platform's lethality and hold enemy targets at risk in high-, medium-, and low-threat environments well into the next century.

B-2: The B-2's range and ability to penetrate defended airspace make a critical contribution to global power projection. The joint force commander can use the B-2 to degrade lethal enemy air defenses, destroy command and control nodes, and devastate essential weapons of mass destruction storage and production facilities.

Current B-2s incorporate the first generation avionics systems to include terrain following (TF) and Global Positioning System (GPS) navigation capability, and the GPS Aided Targeting System (GATS). Block 30 B-2 deliveries have begun, incorporating its final stealth configuration to dramatically reduce vulnerability to threats. Additionally, on-board systems such as TF, communications, situational awareness, and advanced targeting allow its pilots to attack the target while avoiding enemy defenses. By mid-2000, all B-2s will be Block 30 configured, providing the nation an unmatched global attack capability.

B-52: The B-52 provides the National Command Authorities with the ability to respond to the full spectrum of conflict, nuclear and conventional, at global distances. As witnessed in several recent Persian Gulf confrontations, the B-52 is the nation's conventional workhorse, with the ability to deliver the long range, near-precision AGM-86C Conventional Air Launch Cruise Missile (CALCM), as well as the precision, man-in-the-loop, AGM-142. Likewise, the B-52 retains a formidable ability to carry large amounts of conventional gravity munitions, enabling commanders to rapidly add mass and depth to sustained operations. This platform was credited with delivering over 30 percent of the total Desert Storm munitions tonnage, while comprising only 3 percent of the aircraft deployed. Further evidence of this aircraft's versatility is its ability to carry and dispense aerial sea mines and Harpoon anti-ship missiles in anti-shipping and sea lane control operations.

Contribution to Air Force Core Competencies

The Air Force has the unique ability to project power rapidly, precisely, and globally, a capability vital to our National Security Strategy. Bombers will continue to evolve as a desirable option for crisis response and power projection in meeting the needs of the nation and are a key component of our core competency, *Global Attack*. Bombers provide the range, payload, lethality, and speed to guarantee the Air Force can globally project power anywhere, anytime.

Program Status

The Air Force is enhancing B-1 lethality by integrating three variants of Tactical Munitions Dispensers, sea mines, and advanced munitions. The B-1 will employ its current munitions, and the Joint Direct Attack Munition (JDAM) with the ALE-50 Towed Decoy for increased survivability. Starting in FY02, new computer hardware and software allows for the integration of the Wind Corrected Munitions Dispenser (WCMD), Joint Stand-off Weapon (JSOW), and Joint Air-to-Surface Stand-off Missile (JASSM). Combining these new/stand-off munitions with the joint Air Force/Navy Integrated Defensive Electronic Countermeasures (IDECM) system will hold at risk an increased number of targets formerly targetable only by LO platforms.

The Air Force is aggressively adding a formidable conventional mission capability to the B-2 allowing it to attack almost any target, anywhere, anytime. The fleet currently employs the Mk-84, 2000-pound unguided conventional munition, and Block 20 aircraft carry the GPS Aided Munition (GAM), an interim precision weapon capability fielded in July 1996 that uses the GPS Aided Targeting System (GATS). The 509th Bomb Wing from Whiteman AFB, Missouri executed a GAM operational demonstration on 8 Oct 96. Sixteen GAMs were released from three B-2s destroying 16 different targets (8ft x 8ft x 20ft steel boxes). The Block 30 B-2s will host JDAM (superseding GAM), three variants of Tactical Munitions Dispensers, Mk-62 Navy mines, 500-pound and 750-pound unguided bombs, new upgrades such as the GAM-113 hard target penetration munition, and JSOW. Planned post-Block 30 upgrades include JASSM.

The B-52 will gain greater lethality and survivability with precision gravity and stand-off armament systems, currently in development: the JDAM (FY98), WCMD (FY98), JSOW (FY00), and JASSM (FY01). Additionally, a CALCM Block 2 missile will have precision penetration capability to improve its lethality and increase the B-52's ability to destroy hardened targets.

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Evolved Expendable Launch Vehicle (EELV)

(Space Launch Capability)

Key Messages

Our nation depends on routine, affordable, and reliable access to space. Current small, medium and heavy expendable space launch systems meet today's warfighter requirements. However, they are expensive and lack operating features critical to meeting future employment strategies. The Air Force will continue to operate current medium and heavy lift systems (Titan, Delta, and Atlas) until we develop and field a more affordable and operable system. The Evolved Expendable Launch Vehicle (EELV) program will deliver a more affordable capability and will replace the medium and heavy lift systems currently in service with a single modular system that will consolidate manufacturing, operations, and force structure. Additionally, we will continue to modernize the range and launch infrastructure supporting all launch vehicles.

Program Description and Key Points

The Air Force, as the DoD's executive agent for space launch, is charged with executing space launch acquisition programs and space launch operations to achieve the department's objectives and meet user-validated program requirements. Currently, the Delta II launches Global Positioning System satellites, the Atlas IIA launches the Defense Satellite Communications System, and Titan IV, the Air Force's heavy lift vehicle, launches satellites such as the Defense Support Program, MILSTAR, and various national user satellites. EELV will offer efficiencies and rate benefits to reduce the overall cost of space access for all these systems.

Contribution to Air Force Core Competencies

Success on the battlefield is highly dependent on attaining *Air and Space Superiority* and on our ability to exploit information. A robust space launch capability provides access to space for the entire joint team to use information provided or enabled by space platforms. These platforms give the warfighter and the National Command Authorities essential navigation, communications, intelligence, and missile warning information to influence or impact a crisis or contingency. Reliable, affordable access to space allows all the services to better perform their core competencies. It is fundamental to achieving *Air and Space Superiority* and *Information Superiority* in the future.

Discussion

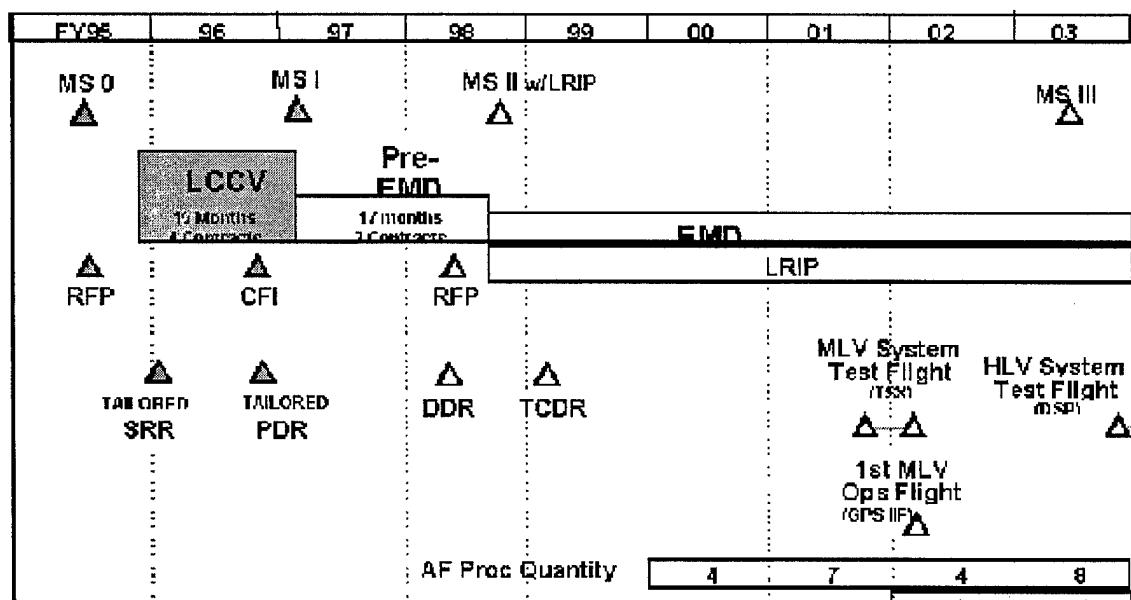
In 1993, Congress directed the DoD to develop, in consultation with the Director of the Office of Science and Technology Policy, a plan that "establishes and clearly defines priorities, goals, and milestones regarding modernization of space launch capabilities for the Department of Defense or, if appropriate, for the government as a whole." Following the resulting 1994 report on DoD launch system modernization options, the Air Force embarked on the EELV program. The underlying principles of the EELV program are to develop an expendable launch system evolved from current systems, or

components thereof, to satisfy current medium and heavy space-lift requirements within a limited \$2 billion development budget. Using this approach, the U.S. can increase production efficiencies to reduce costs to meet medium and heavy-lift launch requirements and obtain a flexible and affordable launch system. EELV will make space access significantly more affordable. Program development costs should be recovered by 2006 through EELV's projected 25 to 50 percent reduction in launch costs over existing systems. EELV is expected to save \$5 to \$10 billion through the year 2020.

Program Status

Four contractors began EELV concept development activities in August 1995. Two contractors, Boeing (formerly McDonnell Douglas) and Lockheed Martin, were selected in December 1996 to carry on the Pre-Engineering Manufacturing Development (EMD) phase of the acquisition cycle. The Milestone II Defense Acquisition Board will be held in June 1998 to approve transition into the EMD and Low Rate Initial Production (LRIP) phases of the program. The chart below depicts the major milestones of the EELV program.

EELV Schedule



PDR - Preliminary Design Review

UR - Systems Requirements Review

CDR - Engineering Manufacturing & Development

TOX - Tr-Service Requirements

Quantity shown does not reflect 2 "System Test Flights" (varieties) funded by RDT&E

RFP - Request for Proposals

DUK - Downselect User Review

CFI - Call for Improvements

LLCV - Low Cost Launch Validator and CUK - Selected Critical Design Review

CPS - Global Positioning System

DCP - Defense Support Program

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F-22

Key Messages

Air superiority is a key to success in modern warfare. It allows every member of the joint team freedom

to operate, freedom from attack and freedom to attack. It allows friendly forces to take away enemy sanctuaries, strike enemy forces wherever they are located, and dictate to the enemy where they can and cannot move their forces. The ultimate in air superiority is air dominance, the kind of air dominance that allowed the devastating application of air and ground combat power against Iraqi forces in *Desert Storm* and saved so many lives.

The F-15C, our current air superiority fighter, will be unable to dominate the air arena in the next century. Today, it is at parity with current foreign aircraft and will be surpassed by at least three foreign aircraft that are either operational or in development: the French Rafale, the Eurofighter 2000, and the Russian Su-35. Proliferation of these modern fighters combined with highly capable surface-to-air missile (SAM) systems pose a formidable challenge to the F-15's survivability. Advanced SAM systems, because of their relatively low cost, are a quick and easy way for countries to modernize their air defense systems. The F-15 fleet is experiencing problems with avionics parts obsolescence, and the average age of the fleet will be more than 30 years when the last F-22 is delivered in 2013.

The F-22 program is developing the next-generation air superiority fighter for the Air Force to counter emerging worldwide threats. It is designed to penetrate enemy airspace and achieve a first-look, first-kill capability against multiple targets. The F-22 is characterized by a low-observable, highly maneuverable airframe; advanced integrated avionics; and aerodynamic performance allowing supersonic cruise without afterburner.

Program Description and Key Points

Stealth: Greatly increases survivability and lethality by denying the enemy critical information required to successfully attack the F-22

Supercruise: Enhances weapons effectiveness; allows rapid transit through the battlespace; reduces the enemy's time to counter attack

Integrated Avionics: Allows F-22 pilots unprecedented awareness of enemy forces through the fusion of on- and off-board information

The synergy of stealth, supercruise, and integrated avionics enables the F-22 to achieve:

First Look, First Shot, First Kill

The combination of these characteristics will make the F-22 the world's premier air superiority fighter, and its design will also make it a formidable air-to-ground weapon system. Internal carriage of both air-to-air and air-to-ground weapons preserves F-22 stealth characteristics. For its primary air-to-air role, the F-22 will carry six AIM-120C and two AIM-9 missiles. For its air-to-ground role, the F-22 can internally carry two 1,000 pound-class Joint Direct Attack Munitions (JDAM), two AIM-120C, and two AIM-9 missiles. With the Global Positioning System-guided JDAM, the F-22 will have a potent adverse weather capability to supplement the F-117 (and later the Joint Strike Fighter) for air-to-ground missions after achieving air dominance.

In addition, F-22 system reliability will enable higher mission availability and sortie rates, providing more combat power using fewer support personnel and less maintenance equipment. This translates directly to fewer airlift sorties required for deployment compared to current fighters.

Contribution to Air Force Core Competencies

The F-22 is the keystone of our nation's *Air Superiority* force for the twenty-first century. Achieving air superiority allows other theater forces to operate free from enemy air attacks, potentially giving friendly forces air dominance--the key to winning wars with the fewest casualties. The F-22 also contributes to our core competency, *Precision Engagement*, enabling other combat and support forces to employ precision weapons or conduct precision information and airdrop operations, as well as independently penetrating deep into enemy airspace to deliver highly accurate 1000-pound JDAMs in adverse weather

conditions.

A future key asset to our Air Expeditionary Force, the F-22 will improve this flexible, tailored, rapid-response force, filling theater commanders' needs across the spectrum of conflict whether conducting *Global Attack* missions or protecting peacekeeping forces. With its stealth and supercruise, the F-22 can safely penetrate and persist deep in enemy airspace to eliminate enemy command and control aircraft, gather information, or conduct precision strikes on key information-related targets, contributing to the joint effort to gain *Information Superiority*.

Discussion

A Joint Estimate Team was chartered in June 1996 to review the F-22 program cost and schedule. As a result of the JET review the program was restructured, requiring an additional \$2.2 billion be added to the EMD budget and 12 months be added to the schedule to ensure the achievement of a producible, affordable design prior to entering production. The program restructure allowed sourcing within F-22 program funds by deleting the three pre-production aircraft and slowing the production ramp. Potential for cost growth in production was contained within current budget estimate through cost reduction initiatives formalized in a government/industry memorandum of agreement. The Defense Acquisition Board principals reviewed the restructured program strategy and on February 11, 1997 the Defense Acquisition Executive issued an Acquisition Defense Memorandum approving the strategy.

The Quadrennial Defense Review Report reduced the F-22 overall production quantity from 438 to 339, slowed the Low Rate Initial Production ramp from 70 to 58, and reduced the maximum production rate from 48 to 36 aircraft per year.

Program Status

The F-22 is well into its EMD program highlighted by a highly successful first flight on September 7, 1997. An intensive flight test program, which has already begun in Marietta, Georgia, will continue at Edwards AFB, California through the year 2001. Low rate production is scheduled to begin in FY99. The aircraft production rate will gradually increase to 36 aircraft per year in FY 2004, and will continue that rate until all 339 aircraft have been built (projected to be complete in 2013). Initial Operational Capability of one operational squadron is slated for December 2005.

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Force Protection

Key Messages

The June 1996 bombing of the Khobar Towers in Saudi Arabia accelerated on-going Air Force efforts to protect its forces operating around the globe and gave the entire Department of Defense new insights into the operating methods of terrorist organizations. To help combat the increased terrorist threat, the Air Force is building a robust force protection program designed to safeguard military personnel, civilian employees, family members, facilities, and equipment.

Program Description and Key Points

The program's objective is to plan and integrate antiterrorism, physical security, and personal protective measures in all locations and situations. Key components of this program include the newly reorganized Directorate of Security Forces, Force Protection Division within the Air Force Security Forces Center, 820th Security Forces Group (SFG), Force Protection Battlelab, and Air Force Office of Special Investigation (AFOSI) Antiterrorism Specialty Team (AST).

Contributions to Air Force Core Competencies

Force protection cuts across all Air Force core competencies, enabling air and space power to contribute to the objectives of the joint force commander. Key specialties forming the core of the force protection team include security forces, civil engineering (including explosive ordinance disposal), communications, intelligence, logistics, transportation, medical, and AFOSI personnel. The synergism of these experts will protect the Air Force's ability to operate freely throughout the spectrum of military operations.

Discussion

The Air Staff Force Protection Division stood up on January 1, 1997 and relocated to the new Headquarters Air Force Security Forces Center at Lackland AFB, Texas. This cross-functional staff is manned by experts from security forces, intelligence, AFOSI, RAF Regiment, U.S. Army, and is supported by other organizations. The division is charged with providing resource advocacy, policy, and guidance on the full range of force protection issues.

The Air Force Security Forces Center stood up at Kirtland AFB on March 17, 1997 and subsequently relocated to Lackland AFB on October 1, 1997. It is comprised of three divisions: Operations, Force Protection, and Corrections.

The 820 SFG stood up on March 17, 1997 and saw its first real-world action in support of Bright Star and Air Expeditionary Force (AEF) V. It is a multi-functional unit trained, organized, and equipped to provide deployed force protection ranging in scope from military operations other than war to major regional conflicts. Designed for rapid movement, this unit, coupled with its security forces flights and heavy weapons elements, is capable of deploying within 24 hours of notification.

The primary focus of the 820 SFG is to provide force protection for the AEF. When the 820 SFG arrives at a forward location they will conduct an immediate assessment of force protection requirements to ensure a secure operational environment for personnel and resources. This secure environment represents a tactical area of responsibility that is based on the key factors of unit mission, posited enemy characteristics, time, troops, and terrain. The 820 SFG reports to the installation commander and provides installation force protection plans.

The Force Protection Battlelab, one of six labs in the Air Force, identifies innovative concepts for protecting Air Force personnel, facilities, and weapons systems. Its focus is to explore and integrate technology, tactics, and training to increase force protection readiness. The Air Force Battlelab went to Full Operational Capability on October 1, 1997.

The battlelab focuses on refining a wide variety of force protection concepts, principles, and doctrine. Through studies and analyses, participation with other battlelabs, interaction with Air Staff and major command policy makers, and utilization of state-of-the-art simulations, the battlelab works through force protection concepts, providing expertise in evaluating proposed changes to doctrine. Current concepts and initiatives include testing and evaluating detection and assessment capabilities at ground based radar sites in South America, as well as Air Force deployments to Southwest Asia in support of AEF V and Bright Star.

The AFOSI AST stood up in April 1997. The AST complements the 820 SFG providing rapid, global support to the deployed area commander by conducting specialized counterintelligence, antiterrorism, and force protection operations. Specific efforts include collection of threat information from local and host country security agencies as well as U.S. security and intelligence agencies, vulnerability assessments, surveillance and countersurveillance activities, investigative support of terrorist incidents, and high-risk protective service operations.

Program Status

The 820th Security Forces Group, Force Protection Battlelab, and Antiterrorism Specialty Team

achieved Full Operational Capability October 1, 1997.

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Global Mobility

Key Messages

Airlift and air refueling forces provide tremendous speed and flexibility in deploying, employing, and sustaining America's military forces. Air mobility forces operate as part of a larger joint warfighting team, working closely with air, land, and naval forces to meet operational requirements for the unified commanders. Air mobility missions include the airlift and/or airdrop of troops, passengers, supplies, and equipment to locations around the globe, as well as air refueling for Air Force, sister Services, and allied aircraft. Air mobility forces also provide worldwide aeromedical evacuation of patients, participate in special operations, and support other national security requirements.

Program Description and Key Points

The Mobility Requirements Study Bottom-Up Review Update and analysis of preposition cargo set the airlift requirement for a two major regional contingencies (MRC) scenario at 49.7 million ton miles per day (MTM/D). Fully mobilized, the Air Reserve Component and active duty contributes approximately 61 percent, while the Civil Reserve Air Fleet (CRAF) provides 39 percent. However, Air Mobility Command's force structure is not only based on the requirements for a two-MRC scenario, but also on unique military requirements such as strategic brigade airdrop, lesser regional contingencies, and peace keeping/peace enforcement.

C-17: The C-17, our follow-on core airlifter, is the key to meeting the nation's strategic mobility requirements for the twenty-first century. Possessing the full range of combat capabilities, the C-17 ushers in a new era in strategic and theater airlift. The C-17 is capable of operating in austere environments under a variety of threat conditions, with roll-on, roll-off capability. It can deliver troops, equipment, and supplies via airdrop or airland operations. The Defense Acquisition Board in November 1995 directed the Air Force to plan, program, and budget to procure a total of 120 C-17s at the maximum affordable rate. The Air Force obtained congressional approval for and signed a seven-year multi-year procurement contract on June 1, 1996 for the last 80 C-17s. This contract provides savings of nearly \$1 billion over current yearly contracts and maintains our airlift capability at the highest possible levels.

C-5: The C-5 Galaxy provides a significant portion of Air Mobility Command's cargo capability and is a vital asset, capable of deploying personnel and cargo between CONUS and overseas locations. The C-5A entered service in 1969 with 50 additional C-5Bs entering service in the mid-1980s. The USAF will concentrate on increasing C-5 fleet effectiveness by implementing a capital investment plan focused on lowering costs of ownership and improving fleet reliability, maintainability, and availability.

C-141: Our current core airlifter, the C-141 is capable of delivering cargo and troops between theaters of operation. The C-141 fleet is nearing the end of its operational service life and is being retired. Over the past several years, fleet structural integrity problems have restricted the C-141's capability. As it is being retired, the fleet will be managed carefully until its replacement, the C-17, is delivered. This includes selectively modifying a group of airplanes to maintain their operational capability and supportability until retirement in 2006.

C-130: The C-130 is our core theater airlift aircraft. Its primary mission is to rapidly transport and deliver personnel and cargo via airland or airdrop operations within the theater of operations. The C-130 can land and take off on short runways, and can operate on austere landing strips. Numerous versions of

the C-130 perform a variety of other specialized missions, including special operations, airborne command and control, air refueling, reconnaissance, and electronic warfare.

Several major modification programs for the C-130 will ensure long-term fleet mission capabilities, including airlift defensive systems, new autopilot, electrical system upgrade, and navigation system improvements. Initial C-130 retirements are scheduled to begin just after the turn of the century when the fleet begins to reach the end of its service life. The Air Force has programmed a low rate C-130J acquisition profile with initial deliveries slated for training, tactics development, and special missions.

KC-135: The KC-135 is our core tanker. It is capable of meeting a number of requirements including deploying, employing and redeploying U.S. and allied aircraft, and supporting the SIOP mission. Given the age of the basic aircraft, modernization of the avionics and communication equipment must keep pace with technology to keep this system a viable force multiplier well into the future. As a cockpit modernization effort, PACER CRAG (compass, radar and Global Positioning System) upgrades the entire KC-135 fleet with current technology to satisfy human factor and the most complex mission requirements. The KC-135 has a predicted service life of 70,000 hours and current annual flight hours reveal a notional service life well into the twenty-first century. However, these numbers do not include the effects of corrosion. Corrosion and economic service life studies are being conducted to examine potential retirement and replacement.

KC-10: The KC-10 is a swing role tanker/airlift aircraft that requires little maintenance and modifications compared to older military systems. However, an aggressive program must be pursued to ensure the KC-10 maintains its FAA certification and stays abreast of evolving technologies. Current modification programs include the installation of GPS. Extensive modifications are planned in the near future to meet evolving Navigation and Safety, and Global Air Traffic Management requirements. Designed with a service life of 30,000 hours, projected structural service life of the KC-10 extends to 2043.

CRAF: An essential component of our airlift modernization plan is a continued reliance on civil aircraft. A critical part of our airlift force today, CRAF can provide up to one third of DoD's cargo capacity and 93 percent of strategic airlift passenger capability when fully mobilized. Mobilization can occur in three stages, each requiring SECDEF or Presidential approval. In exchange for receiving peacetime transportation business from the Department of Defense, civilian air carriers voluntarily commit aircraft to the wartime/contingency CRAF mission. The result is DoD has a substantial on-call airlift capacity at virtually no cost.

Contribution to Air Force Core Competencies

Rapid Global Mobility is key to conducting military operations throughout the spectrum of conflict. Air mobility forces provide the most flexible and responsive means to rapidly project and sustain combat forces during peace and war. The fundamental operational objective is to quickly project combat, peacekeeping, and humanitarian assistance forces anywhere in the world and sustain those forces once deployed.

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Information Superiority

Key Messages

Success on the twenty-first century battlefield will rely more and more on our ability to use and protect information. *Information Superiority is the ability to collect, control, exploit, and defend information while denying an adversary the ability to do the same.* The key to achieving and maintaining

Information Superiority is a robust intelligence, surveillance and reconnaissance (ISR) capability that is transmitted to the warfighter and a thorough understanding of Information Operations (IO)--those actions taken to affect an adversary's information and information systems while defending one's own. Information Warfare (IW), defensive and offensive, is an integral component of IO.

Program Description and Key Points

At the heart of Information Superiority is an air and space C2ISR architecture. Our contribution to this joint "system of systems" includes a variety of air- and space-based platforms, as well as the tools that support information processing.

The Air Force is acquiring two additional **RC-135 RIVET JOINT** (RJ) aircraft. Like other Information Superiority platforms, the RJ is in great demand by theater Commanders in Chief (CINCs), resulting in an extremely high operations and personnel tempo. The addition of two aircraft will moderate this problem. **U-2s** continue to provide critical information around the world in support of United Nations, national and theater requirements. The **Contingency Airborne Reconnaissance System** (CARS), the primary Air Force ground station for exploiting U-2-collected information, continues to provide support to joint forces in Bosnia and Southwest Asia. **Mobile Stretch** (MOBSTR), the U-2 downlink, processing and long-haul communication portion of CARS, has proven the concept of near-real-time intelligence support to deployed forces from CONUS. The Air Force has two **Joint Service Imagery Processing Systems**, a worldwide deployable ground station designed to receive, process, exploit, and disseminate national-level imagery and imagery-derived products to the warfighter in near-real time. **Joint STARS** provides excellent wide-area surveillance for theater CINCs and has proven itself in two deployments supporting NATO requirements in Bosnia. The Joint STARS was approved for full-rate production and will reach Initial Operational Capability (IOC) in 1997. The Air Force plans to operate three **Unmanned Aerial Vehicle** (UAV) systems to conduct ISR missions. Predator is a medium-altitude endurance UAV currently operating in Bosnia. Global Hawk and the low-observable DarkStar are high-altitude endurance UAVs under development.

Space Based Infrared System (SBIRS) consolidates DoD's non-imaging infrared systems into a single overarching architecture to fulfill national security needs in the areas of missile warning and defense, technical intelligence, and battlespace characterization. It will provide an effective transition from the Defense Support Program to meet a wide range of theater and national requirements.

The **Theater Battle Management Core System** (TBMCS) and **Air Force Mission Support System** will provide primary support tools for theater commanders, creating seamless information flow to the warfighter. These programs will fully support implementation of DoD's **Global Command and Control System** (GCCS) as part of the Defense Information Infrastructure-Common Operating Environment. TBMCS will provide command and control and Air Tasking Order generation through the **Contingency Theater Automated Planning System**, situational awareness and current intelligence data using the **Combat Intelligence System**, and a common communication network for use at Air Force wings, the **Wing Command and Control System**. **Joint Tactical Information Distribution System** provides the exchange of data between all netted systems, including fighter, surveillance, and air and ground command and control platforms, and enables joint warfighters to share a common picture of the entire tactical battlefield.

The top IW priority is to defend our own increasingly information-intensive capabilities. Already the leader in defense of garrison computer systems, the Air Force aggressively to defend its forward deployed assets. The Air Force has an **Automated Security Incident Measurement** System which provide intrusion detection capability to 108 A. Additionally, the Air Force is funding Network Control Centers and Base Information Protection programs to allow bases to manage and protect computer networks from a central location. The Air Force also is working concepts for operational and tactical offensive IW and is continuing to work with other federal agencies to support strategic information operations. With the establishment of the Air Force Information Warfare Center in 1993, the creation of the 609th Information Warfare Squadron in 1996, the consolidation of IO disciplines on the Air Staff, and the standup of an IW Battle Lab, the Air Force is well prepared to.

Contribution to Air Force Core Competencies

The absolute need for *Information Superiority* is a common thread through all military operations. While *Information Superiority* is not the sole domain of the Air Force, it is, and will remain, an Air Force core competency. In fact, without *Information Superiority*, the Air Force can't successfully bring its other core competencies to bear.

Discussion

In no other area is the pace and extent of technological change as great as in the realm of information. Information Operations and Information Warfare, in particular, will grow in importance during the next century. Providing the joint force Full Spectrum Dominance will require a truly interactive common battlespace picture, and the Air Force is committed to providing the integrated global and theater air, space, and surface picture of the battlespace to the twenty-first century Joint Force Commander.

Program Status

Air Force ISR and IO programs are critical components for maintaining dominance on future battlefields. Continuing upgrades and improvements to the Air Force's ISR platforms and tools and the development of new concepts and capabilities will ensure the Air Force continues to provide U.S. military commanders and national decision makers Information Superiority—today and tomorrow.

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Joint Strike Fighter (JSF)

Key Messages

Success on the twenty-first century battlefield rests on the ability of the joint force to quickly gain air superiority and precisely conduct strike operations while minimizing risk and collateral damage. While the F-22 is key to attaining air superiority in the future, the Joint Strike Fighter (JSF), will provide the 24-hour, adverse weather, precision engagement capability the joint force commander needs.

The JSF is a multi-role fighter optimized for the air-to-ground role, designed to affordably meet the needs of the Air Force, Navy, Marine Corps and our allies, with improved survivability, precision engagement capability, the mobility necessary for future joint operations and the reduced life cycle costs associated with tomorrow's fiscal environment. JSF will benefit from many of the same technologies developed for F-22 and will capitalize on commonality and modularity to maximize affordability. JSF's bottom line: an effective, affordable balance of survivability, lethality, and supportability.

Program Description and Key Points

The JSF program will demonstrate two competing weapon system concepts for a tri-service family of aircraft to affordably meet these service needs:

USAF-Multi-role aircraft (primarily air-to-ground) to replace F-16 and A-10 and to complement F-22

USN-Multi-role, stealthy strike fighter to complement F/A-18E/F

USMC-Multi-role Short Take-Off & Vertical Landing (STOVL) strike fighter to replace AV-8B and F/A-18A/C/D

UK-STOVL (supersonic) aircraft to replace the Sea Harrier

Key characteristics and capabilities of the JSF system include:

Survivability: radio frequency/infrared signature reduction and on-board countermeasures to survive in the future battlefield--leveraging off F-22 air superiority mission support

Lethality: integration of on- and off-board sensors to enhance delivery of current and future precision weapons

Supportability: reduced logistics footprint and increased sortie generation rate to provide more combat power earlier in theater

Affordability: focus on reducing cost of developing, procuring and owning JSF to provide adequate force structure

Contribution to Air Force Core Competencies

The JSF will provide 24-hour, adverse weather *Precision Engagement* for the joint force on the future battlefield in 2010 and beyond. JSF's integrated avionics and stealth allow it to penetrate surface-to-air missile defenses to destroy targets, when enabled by the F-22's air dominance. The JSF is designed to complement a force structure that includes other stealthy and non-stealthy fighters, bombers, and reconnaissance / surveillance assets. This mixture of assets ensures successful *Global Attack* missions while increasing *Information Superiority*. Additionally, the JSF's low unit cost will allow a larger force structure providing greater overall employment flexibility and operations tempo in both peace and war.

Discussion

JSF requirements definition efforts are based on the principles of Cost as an Independent Variable: Early interaction between the warfighter and developer ensures cost / performance trades are made early, when they can most influence weapon system cost. The Joint Requirements Oversight Council has endorsed this approach.

The JSF's approved acquisition strategy provides for the introduction of an alternate engine during Lot 5 of the production phase, the first high rate production lot, when benefits are substantial. OSD is considering several alternative implementation plans which would accelerate this baseline effort.

Program Status

The focus of the program is producing effectiveness at an affordable price—the Air Force's unit flyaway cost objective is \$28 million (FY94\$). We anticipate Congress will fully fund JSF for FY98 (USAF, USN and DARPA Program Elements), with a \$15M plus-up for alternate engine risk reduction efforts. The Concept Demonstration Phase (CDP), successfully initiated in Nov 96 with the selection of Boeing and Lockheed Martin, is in full swing. Both contractors are: (1) designing and building their concept demonstration aircraft, (2) performing unique ground demonstrations, (3) developing their weapon systems concepts. First operational aircraft delivery is planned for FY08.

The JSF is a joint program with shared acquisition executive responsibilities. The Air Force and Navy each provide approximately equal shares of annual funding, while the United Kingdom is a collaborative partner, contributing \$200 million to the CDP. CDP, also known as the Program Definition and Risk Reduction (PDRR) phase, consists of three parallel efforts leading to Milestone II and an Engineering and Manufacturing Development (EMD) start in FY01:

Concept Demonstration Program. The two CDP contracts were competitively awarded to Boeing and Lockheed Martin for ground and flight demonstrations at a cost of \$2.2 billion for the 51-month effort, including an additional contract to Pratt & Whitney for the engine. Each CDP contractor will build concept demonstrator aircraft (designated X-32/35). Each contractor will demonstrate commonality and

modularity, short take-off and vertical landing, hover and transition, and low-speed carrier approach handling qualities of their aircraft.

Technology Maturation. These efforts evolve key technologies to lower risk for EMD entry. Parallel technology maturation demonstrations are also an integral part of the CDP / PDRR objective of meeting warfighting needs at an affordable cost. Focus is on seven critical areas: avionics, flight systems, manufacturing and producibility, propulsion, structures and materials, supportability, and weapons. Demonstration plans are coordinated with the prime weapon system contractors and results are made available to all program industry participants.

Requirements Definition. This effort leads to Joint Operational Requirements Document completion in FY00; cost/performance trades are key to the process.

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National Missile Defense (NMD)

(Minuteman Option)

Key Messages

The Air Force Minuteman (MM) option can provide the nation a near- to mid-term national missile defense (NMD) capability that complies with the Department of Defense's "3+3" program for ballistic missile defense against rogue nation threats while maximizing return on investment. This option leverages existing systems and infrastructure to provide a single site national missile defense capability providing coverage for all 50 states. The MM option reduces program risk and offers a low deployment and development cost (\$2.4 billion, Air Force cost estimate), arms control treaty-compliant path that achieves operational status within four years and allows growth to defend against more sophisticated threats. The Air Force and the Office of the Secretary of Defense have examined a second option that includes an Exoatmospheric Kill Vehicle (EKV) that is projected to cost \$4.1 billion for deployment.

Program Description and Key Points

The Minuteman-based interceptor architecture maximizes the use of several systems now in the field: the Minuteman booster and its infrastructure; strategic sensors; and existing Battle Management, Command, Control and Communications (BMC₃) infrastructure. Defense Support Program (DSP) satellites would detect threat launches and provide initial threat characterization. The DSP data would be used to cue upgraded early warning radars (UEWR), which in turn generate track information. Integrated tactical warning and attack assessment (ITW/AA) information will be consolidated at the Cheyenne Mountain Complex BMC₃ node in Colorado. Interceptor targeting information will then be forwarded to the interceptor site for launch and guidance. In addition, ground-based, X-band dish antenna radars with limited electronic beam steering would provide fine tracking and discrimination to assist in identifying reentry vehicles from other objects.

After detection and early warning of a hostile launch, the Minuteman-based interceptor would launch, acquire its target, and guide itself into the path of the oncoming warhead to destroy the target using kinetic energy. An anti-ballistic missile (ABM) radar based on existing technology will be integrated into the system architecture at the interceptor site to provide updated guidance instructions to the kill vehicle.

The interceptor missile will comprise all three stages of a Minuteman booster, structural frame of the post-boost vehicle, a missile guidance system, an advanced solid axial stage (a solid propellant kick

motor), a kinetic kill vehicle (KKV), associated guidance and control software, and auxiliary equipment. Alternate kill vehicle designs incorporate missile guidance in an EKV.

Contribution to Air Force Core Competencies

The ability to defeat enemy reentry vehicles targeted on U.S. territory protects American lives and property, ensures the U.S. is never subject to blackmail or coercion by outlaw regimes, and contributes to the Air Force Core Competency of *Air and Space Superiority*.

Program Status

Under the Department of Defense "3+3" NMD deployment readiness program, the Air Force offers an option which takes maximum advantage of established, operational capabilities to create a near-term, low-cost, flexible and stability-enhancing NMD system. In an era of declining resources, decision-makers should select the best value for every dollar expended on U.S. defense. The Air Force Minuteman NMD option capitalizes on existing technology, proven reliability, and over 35 years of operational experience to provide the nation a near-term NMD capability. The Air Force has conducted five successful operational evaluations of key NMD system elements and plans to conduct two more tests during 1998-99.

The FY97 Appropriations Conference Report directed funds transfer of \$23 million to allow the Department of Defense to fully explore the Air Force NMD concept. The funds will be used to develop a national test launch infrastructure on Kodiak Island, Alaska.

The FY98 Appropriations Conference Report provided \$7 million to upgrade the Have Stare radar, located at Vandenberg AFB, CA, to support missile defense testing.

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Outsourcing and Privatization

Key Messages

The Air Force is vigorously pursuing outsourcing and privatization programs to save resources for investment in vital modernization and quality of life programs. These initiatives have the added benefit of improving the performance, quality, and efficiency of Air Force functions and are key to our future success.

Program Description and Key Points

Outsourcing entails competing a function currently performed in-house with an outside provider. When that competition shows outsourcing to be more efficient and effective, the Air Force contracts with a commercial provider. In recent years, the Air Force has outsourced base-level activities such as training range management, building and grounds maintenance, precision measurement equipment calibration, and aircraft maintenance. For example, the outsourcing of aircraft maintenance at Columbus AFB, Mississippi, Altus AFB, Oklahoma, Holloman AFB, New Mexico, and Laughlin AFB and Reese AFB, Texas, has already yielded significant savings. Additionally, we are examining the outsourcing of base operating support at Tyndall AFB, Florida, Wright Patterson AFB, Ohio, Hickam AFB, Hawaii, and Columbus AFB, Mississippi as well as the outsourcing of base supply activities at Edwards AFB, California. Together, these initiatives could potentially yield tremendous savings.

In the case of privatization, the Air Force divests itself of a function and transfers it to the private sector to perform. This was accomplished at our facility in Newark, Ohio where the Air Force assigned specialized functions of the Aerospace Guidance and Metrology Center to Rockwell International and

Wylie Labs.

Contribution to Air Force Core Competencies

The savings gained through successful outsourcing and privatization initiatives benefit each of the core competencies by making additional funds available for priority programs.

Discussion

The FY98-03 President's Budget included dramatic savings that reflected our strategic goals for outsourcing and privatization initiatives. These savings were applied to specific modernization programs. Responding to DEPSECDEF's direction and from the QDR report our O&P program is now expanding from what we had in our budget from \$1.2 billion to \$2.4 billion, which we have laid into our FY99-03 POM. It is built on our past extraordinary record in A-76 and as an added commitment we have moved from a supporting IPT to a full division dedicated to O&P policy for the Air Force, along with an O&P Panel that is tied to the Air Force Corporate Structure. Our fundamental objective to reduce infrastructure, increase the role of the private sector, and still meet mission requirements is even more relevant in this post QDR era.

Program Status

The Air Force initiated an outsourcing "JUMP START" program in November 1996 to evaluate potential candidates for competition. Only inherently governmental, militarily essential, and legislatively protected activities are exempt as candidates for evaluation. Due to the length of time to complete A-76 studies, and needed legislative relief, we do not begin to achieve O&P savings anticipated in the QDR until FY00. Therefore, the Air Force O&P program as expressed in the QDR will not be fully implemented until FY04.

In the area of privatization, we are focusing on two main areas. For the first area, we are testing the feasibility of fully privatizing military family housing. The lead Air Force project is at Lackland AFB, Texas and will evaluate the potential savings from such an approach. In this case, the contractor would construct and maintain ownership of the housing units and Air Force members would lease them.

The second area being looked at is the potential savings from divesting ourselves of on-base utilities plants and turning to private companies for our utilities needs. This approach is limited by the need to get project specific authorization for each initiative we would like to undertake. We are pursuing legislative relief in the FY98 bills to allow us to convey part or all of a utility system to utility companies through the use of a competitive process.

The final area involves the public/private competitions of the air logistics centers at Sacramento, California and San Antonio, Texas. The first such competition was the C-5 aircraft periodic depot maintenance (PDM) workload at San Antonio ALC. On 4 Sept 97, the public bidder (Warner-Robins ALC) was named the winner, resulting in \$190 million in estimated savings over the seven-year performance period. Initial acquisition planning for the engine maintenance competition is underway. At Sacramento, the Air Force consolidated most of the depot maintenance workload for a single competition. The draft request for proposal (RFP) was released July 1997. Planned release of the final RFP will occur once the lessons learned from the C-5 competition are fully evaluated.

To date, the Air Force's experience with outsourcing and privatization has been a positive one and our Service remains committed to implementing these cost saving initiatives whenever possible.

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Precision Weapons

Key Messages

The next generation of precision weapons are powerful force multipliers and critical enablers of present and future weapon systems. Combined with upgrades in aircraft avionics, they provide the ability to accomplish multiple-kills-per-sortie versus the previous requirement for multiple-sorties-per-kill. They reduce risk to U.S. and allied forces and minimize collateral damage. These weapons also enable our aircraft to eliminate enemy sanctuaries, providing more employment options and flexibility to the Joint Force Commander. To meet future needs, the Air Force will address continued development of smart weapons for hard and deeply buried targets and weapons of mass destruction.

Program Description and Key Points

The Air Force's precision-guided munition (PGM) investment strategy is based on meeting our nation's security needs in the post-Cold War environment. The type of weapons in our inventory has remained fundamentally unchanged since the end of the Vietnam War. Desert Storm demonstrated our current weapons' effectiveness and also revealed their shortcomings. Next generation weapons must have improved accuracy, adverse weather capability, increased stand-off capability, autonomous guidance, improved hardened target capability, and multiple-kills-per-pass/multiple-targets-per-release capability. Current Air Force inventory weapons have only a few of these attributes.

Laser Guided Bombs (LGBs), GBU-15, AGM-65 Maverick, and the GBU-28 Penetrator provide limited hard target penetration, limited stand-off, and precision guidance (three-meters), but no adverse-weather capability. The **AGM-88 High Speed Anti-Radiation Missile (HARM)** and **AGM-84 Harpoon** anti-ship missile provide limited, long-range stand-off capability.

During the 1980s, the Air Force acquired "transitional" weapons, however they are carried on a limited number of platforms. This of course restricts employment flexibility. The **AGM-130** and **AGM-142** unitary warhead missiles provide precision and long-range stand-off capability from the F-15E and B-52, respectively. The **Conventional Air Launched Cruise Missile (CALCM)**, employed on the B-52, offers stand-off outside theater defenses, with near-precision accuracy. The **Global Positioning System (GPS) Aided Munition (GAM)** provides an interim adverse-weather direct-attack capability for the Block 20 B-2. The final "transitional" weapon is the **Sensor Fuzed Weapon (SFW)**, a multiple-kill-per-pass anti-armor and suppression-of-enemy-air-defenses (SEAD) submunition weapon developed to defeat armored columns. These weapons will remain effective well into the next decade.

Beginning in the mid-1980s, the Air Force and Navy began development of "next generation" weapons to fulfill the shortcomings of the earlier weapons. All of these are now well into development, or in the initial stages of production. **Joint Direct Attack Munition (JDAM)** is an Inertial Navigation System (INS)/GPS guidance tail kit for general purpose and penetrator 2,000- and 1,000-pound warheads in the existing inventory. The tail kit converts dumb bombs into accurate adverse-weather capable weapons, which can be individually targeted resulting in multiple-kills-per-pass. **Wind Corrected Munitions Dispenser (WCMD)** provides a similar capability for cluster munition dispensers, with INS guidance allowing high-altitude delivery out of range of anti-aircraft artillery. In addition, the follow-on to the SFW (SFW P3I) is presently under development and will increase the accuracy, enlarge the pattern, and offer greater kills-per-pass than the original SFW. The **Joint Stand-off Weapon (JSOW)** is an adverse-weather, short-range, stand-off anti-armor/SEAD dispenser weapon. The long-range, precision, stand-off requirement is met by the **Joint Air-to-Surface Stand-off Missile (JASSM)**, which will also have a limited hard target penetration capability.

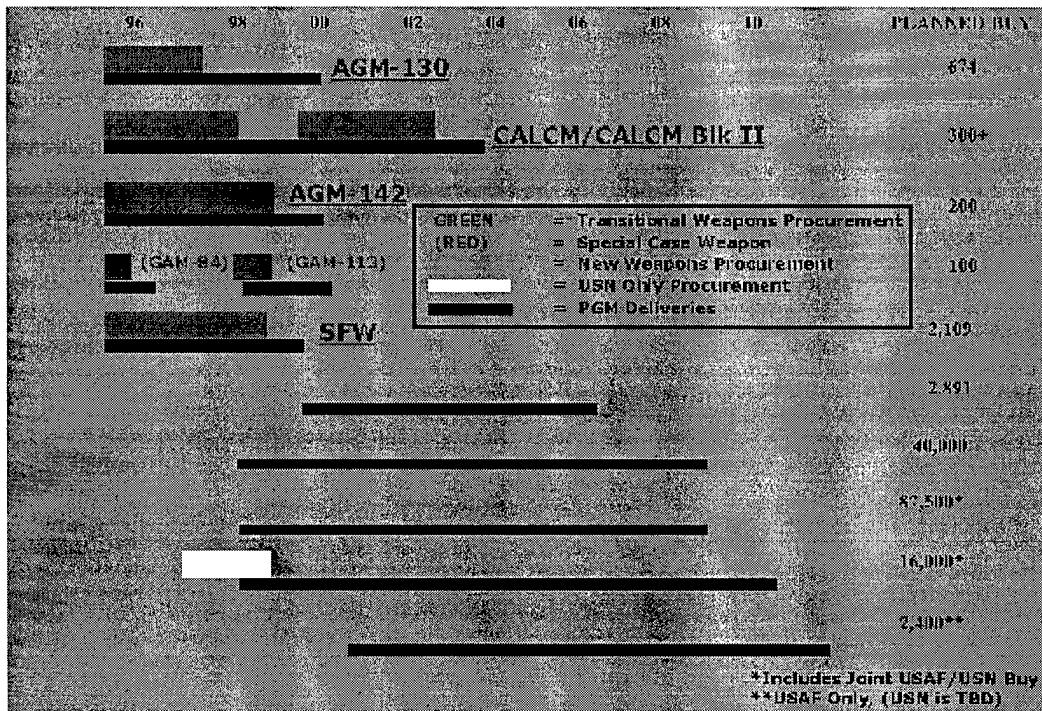
These new weapons are all autonomously guided, have adverse weather capability, and offer a multiple-kills-per-pass capability for our combat aircraft (often requiring only one weapon to kill one target). In addition, these weapons are being integrated into virtually every Air Force combat aircraft, such as the B-1, B-2, B-52, F-16, F-15E, F-117 and F-22. Weapons development and production plans are closely coordinated with aircraft modifications to integrate these new weapons efficiently.

Contribution to Air Force Core Competencies

The essence of *Precision Engagement* lies in the ability to apply selective force against specific targets to achieve discrete and discriminant effects. The "next generation" weapons meet this challenge. In addition, these weapons enable Air Force platforms to rapidly attack targets anywhere on the globe at any time, enhancing the Air Force core competency of *Global Attack* and providing employment options and flexibility for the Joint Force Commander.

Program Status

Weapon Procurement & Deliveries



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Quality of Life

Key Messages

Investments in quality of life programs enhance readiness by positively influencing efforts to recruit and retain top quality people for the Air Force's highly technical air and space mission. The Air Force places a total force focus on quality of life programs to satisfy the diverse needs of our members and families--active, Reserve, and Guard--as well as those of our civilian employees. Quality of life programs receive considerable emphasis in the Air Force's corporate culture, ranking with modernization and readiness as a top priority.

Program Description and Key Points

The Air Force quality of life strategy continues to emphasize programs designed to improve the living and working conditions of our members and families. This strategy is functionally integrated, providing

continuity and balance to our "People First" priorities. The initiatives supporting these priorities are developed from field survey results, major command (MAJCOM) inputs, and corporate guidance with a goal of complementing Department of Defense quality of life themes.

Contribution to Air Force Core Competencies

Quality of life pursuits are designed to provide the "foundation of strength" for Air Force core competencies by attracting and retaining quality people essential to such military capabilities. As stated in the Air Force vision paper, *Global Engagement*, "Air Force men and women carry out the core competencies of Air and Space Superiority, Global Attack, Rapid Global Mobility, Precision Engagement, Information Superiority, and Agile Combat Support." We attract high quality people through quality of life initiatives that satisfy basic needs, such as housing and medical care, allowing members to focus on our core competencies.

Discussion

To sustain progress in taking care of our people, the Air Force quality of life office continues to conduct field surveys and interface with MAJCOMs to keep our quality of life strategy focused and relevant. To make the most of limited resources, the Air Force supports the DoD quality of life theme of developing low-cost, high-payoff initiatives. The Air Force has committed significant resources to sustaining progress in quality of life programs, including the full funding of military tuition assistance and authorizing additional manpower for family support and fitness centers.

Program Status

Our quality of life strategy for the FY99 budget cycle will continue to emphasize seven priorities. The specific initiatives associated with each are developed by a cross-functional integrated process team and published annually as the Quality of Life Focus:

Compensation and benefits--Our goal is to provide compensation that keeps pace with the private sector and inflation along with a strong benefits program to complement compensation's basic objective of attracting, retaining, and motivating a volunteer force.

Balanced OPTEMPO/PERSTEMPO--Since we are fast becoming more of an expeditionary force, based in the continental U.S., we must continue to support programs that help our members and their families make the corresponding cultural transition. We will continue to monitor the number of days individuals are away from home and strive to limit the number to no more than 120 within a 12-month period. Global tasking management, Air Reserve Component participation, and family readiness programs are all intended to help mitigate the impact of escalating contingency demands on our units and families.

Safe, adequate, and affordable housing--Comfortable homes and safe neighborhoods, both on and off base, are the goals of our initiatives in this area. Through a combination of military construction, privatization initiatives, and housing allowance reform, we are working to reduce our family housing and dormitory improvement projects backlog and to limit the amount of out-of-pocket housing expenses associated with living off base.

Quality health care--As the number of military treatment facilities declines and health care costs increase, TRICARE is helping us meet the objective of providing our military members and families high-quality medical coverage. All 12 TRICARE regions will be on line by the end of May 1998. To enhance readiness, we will continue to establish health and wellness centers at our major installations. These facilities provide a central resource for personal health and fitness management and preventive medicine.

Support for Community Programs--We seek to enhance programs providing a sense of community for our single members and those with families facing relocation and deployments. Much of the total force thrust of our quality of life strategy is focused in this

area and includes fitness centers, child care, youth programs, and family support centers.

Preserving Military Retirement Systems and Benefits--In the face of ongoing budgetary reviews, the stability of our current retirement system and the preservation of the purchasing power of retired pay is crucial to future retention efforts. A solid benefits package, like continuing medical coverage and cost-of-living adjustments (COLA), compensates for the extraordinary demands we place on our people over the course of their careers. Our goal is to prevent any erosion in the value of military retirement and to support continuing health care access to retirees of all age groups.

Educational Opportunities--We are committed to sustaining full tuition-assistance funding and exploiting distance learning technologies. Enhanced educational opportunities allow for personal growth and provides a productive and motivated force. Expanding Montgomery GI Bill eligibility would enhance this agenda.

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Readiness

Key Messages

The United States Air Force is the most ready and capable air and space force in the world today. We are also a very busy force--currently supporting 14 ongoing operations and various coalition, allied and joint exercises around the world. Our ability to meet this demand hinges on the readiness of our forces. We must continue to emphasize readiness issues to ensure our ability to answer our nation's call.

The Air Force maintains a high state of overall readiness because of the rapid response times required to employ air and space power and support theater commanders' needs. Airlift, tanker, fighter, communications, reconnaissance, intelligence and other Air Force units are the first forces required in any warfighting effort. Many of these same units are in high demand during peacetime crisis situations and Operations Other Than War (OOTW).

Program Description and Key Capabilities/Points

Air Force readiness is comprised of several elements, including personnel, equipment, training, logistics, professional development and financial resources. These elements touch every Air Force functional area; a shortfall in any one will degrade readiness, so maintaining readiness in today's fiscal and political environment is a real challenge. Because today's decisions impact tomorrow's readiness, we must not only stress training our people for today--equal emphasis must be placed on equipment--including acquiring new technologies and modernizing current systems.

Contribution to Air Force Core Competencies

Readiness is the heart and soul of the Air Force Core Competencies and the concept of Global Engagement. We can not bring a single competency to bear without trained, motivated people, reliable, relevant weapon systems, and efficient, flexible infrastructures to support them. We must attend to the needs of our people and continue to improve our equipment and capabilities.

Discussion

Post cold war geopolitical dynamics have mandated a transition from forward based forces to a worldwide expeditionary force. Current Air Force readiness levels allow us to flexibly deploy a relevant force rapidly anywhere in the world to gather essential intelligence, discourage potential enemies, halt

invasions, or provide humanitarian aid.

Since 1986, the Air Force has downsized by nearly 35% while operational taskings have quadrupled. We are engaged around the world everyday, with operations in Bosnia and Southwest Asia keeping our deployment taskings high. TEMPO is still of great concern to us and we continue to seek effective ways of managing the stress on our people.

In addition to the management initiatives of the past three years (Global Military Force Policy, Global Sourcing, and increased Air Reserve Component (ARC) participation), we have taken other steps as a Service to mitigate the effects of our high TEMPO. Several of these will provide immediate relief to our units. We have addressed stated concerns about lengthy deployments by reducing aircrew deployments from 90 to 45 days. Post-deployment standdowns have been instituted to give people a break after TDYs of 45 or more days, allowing time to reacquaint with family and return to normalcy. In 1998, our units will feel relief from a reduction in unit inspections, with a goal of reducing and capping the number of inspection days (the days inspectors are on base for any reason); there is also an effort underway to use real-world deployments for operational readiness ratings, rather than staging situations strictly for inspections. In the short-to-medium range, there are parallel efforts on the Joint Staff and the Air Staff to reduce exercises. The joint goal is to reduce exercise mandays by 15% before FY01; the Air Force goal is 10% by FY02. In another effort, we have developed a highly accurate tool to track Air Force members' time away from home. We have developed PERSTEMPO thresholds to use in conjunction with the TDY Tracker; we can apply the thresholds against the database to highlight potential stresses and work to manage them before extensive problems can occur. It provides quantifiable data on each Air Force member's PERSTEMPO and can be used by commanders at all levels to manage stress and taskings. Finally, we will be working with the Joint Staff to institute periodic reviews of ongoing rotational taskings in all theaters to validate requirements.

Program Status

-- Current Readiness: We have 10,875 personnel and over 300 aircraft deployed in current operations and 91% of Air Force (Active and ARC) units are at the highest readiness levels. ARC participation continues at levels comparable to DESERT SHIELD, and is the keystone in managing active duty TEMPO. Even with our success in sustaining high overall readiness levels, we are seeing disturbing indicators in several areas. Some aircraft mission capable rates are declining, and we are currently experiencing some engine spare shortages. There are also caution lights in the personnel arena; pilot and navigator retention has decreased 16% and 13% respectively, from FY95 - 97 and 2nd term reenlistment rates are below goals, declining 11% between FY93 - 97.

-- TDY Tracker and PERSTEMPO Thresholds: Online as of 1 October 1997, and approved for use in the Chairman's Readiness System-- Joint Monthly Readiness Review (JMRR).

-- Aircrew Deployment Length Reduction, Post-Deployment Standdown: Implemented Spring 1997, units and individuals are already feeling the impact of these efforts.

-- Revamping of Inspection Program: To be implemented in 1998, considers mandays, preparation time, and impact on the senior leadership focus.

-- Joint/Air Force Exercise Reduction: Currently reviewing all joint and service exercises with a goal of reducing joint by 15%, and service by 10% over the FYDP.

-- Rotational Tasking Scrub: In October, the Joint Staff tasked all theaters to review and validate rotational requirements. The preliminary results are due by 27 Dec 97. The Air Force advocates implementing an annual requirements review conference, headed by the Joint Staff.

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Space-Based Infrared System (SBIRS)

Key Messages

The Space-Based Infrared System (SBIRS) combines national and DoD infrared detection systems into a single architecture, fulfilling the nation's missile warning and defense, technical intelligence, and battlespace characterization requirements. This newly emerging capability will greatly enhance the tools that national policy-makers and unified and theater commanders have at their disposal to provide missile warning/defense and information to verify an adversary's technical ability, strength, disposition of forces, and even the intensity of combat operations.

SBIRS is a coordinated effort to provide a balance between requirements and affordability. It will provide an effective transition from the Defense Support Program (DSP) to an improved system that meets a wider range of theater and national support needs.

Program Description and Key Points

SBIRS is a consolidated, cost-effective, flexible system that will meet United States infrared space surveillance needs through the next two to three decades. SBIRS is an integrated "system of systems" that includes multiple space constellations and an evolving ground element. The architecture includes satellites in Geosynchronous Earth Orbit (GEO) and Low Earth Orbit (LEO), sensors hosted on satellites in Highly Elliptical Orbit (HEO) and ground data processing and control assets. The "system of systems" approach integrates previously independent infrared sensor programs resident in the Air Force and intelligence space communities and eliminates duplicative efforts. SBIRS incorporates new technologies that enhance detection, improve reporting of intercontinental ballistic missile, sea-launched ballistic missile and theater ballistic missile launches, and provide critical mid-course tracking and discrimination data for national and theater missile defense.

Contribution to Air Force Core Competencies

SBIRS is a part of our "system of systems" that enables the Air Force to achieve *Air and Space Superiority* and *Precision Engagement*, to dominate air and space. SBIRS provides key information--missile launch time, location, heading, and type--to cue interceptors and missile defense systems, enabling precision weapon employment against missile launch sites; technical intelligence regarding infrared events of interest; and an infrared focus on the theater providing situational awareness in other areas.

Discussion

In the summer of 1994, an extensive study was conducted to define and validate the warfighting requirements for missile warning. The Joint Requirements Oversight Council validated the warfighting requirement and established the Air Force as the DoD lead for the SBIRS program. SBIRS Low is the successor to the Brilliant Eyes program which Congress transferred to the Air Force from the Ballistic Missile Defense Organization in FY94 to better integrate the nation's infrared satellite programs.

Program Status

The SBIRS High Engineering and Manufacturing Development (EMD) contract was awarded in November 96 to Lockheed Martin. The launch of the first satellite of a five-satellite acquisition into a four-satellite constellation is in FY02, and the first of two HEO sensor deliveries is in FY01. The SBIRS Low component is in a technology demonstration phase supported by two parallel activities. A total of three demonstration satellites will be launched (one in FY99 and two in FY00). The first of approximately 24 operational LEO satellites will be launched in FY04.

The ground segment will be delivered incrementally. The first increment consolidates DSP and Attack

and Launch Early Reporting to Theater (ALERT) mission functions at a single CONUS ground station and will become operational in FY99. This consolidation will provide enhanced mission processing with reduced operations and maintenance. A second increment will provide all ground segment functions necessary for GEO, HEO, residual DSP satellite operations and new mobile strategic processing capability. The third increment will incorporate the functions required for LEO satellite operations.

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Space-Based Laser

Key Messages

The Space-Based Laser (SBL) is a Ballistic Missile Defense Organization (BMDO) program based on 20 years of research by the Air Force, the Defense Advanced Research Projects Agency, and BMDO. The Air Force is the executing agent for this program. SBL is in the Air Force Long Range Plan and is consistent with the eventual transition to a Space and Air Force as described in Global Engagement. The SBL Readiness Demonstrator (SBLRD) is the first step in proving the feasibility and operational contribution of defeating ballistic missiles during boost phase from orbit. Additionally, the SBLRD could potentially demonstrate possible contributions to other Air Force missions such as space and air superiority, precision engagement, and information dominance.

Program Description and Key Points

The purpose of the SBLRD is to conduct an ABM Treaty compliant demonstration of key technologies associated with the operation of a high energy laser in space, as well as related acquisition/targeting and beam control technologies. The Air Force is currently conducting a detailed review of potential technical alternatives that would be consistent with Congressional direction, affordable within the budgetary environment, and offer a growth path toward an operationally useful system, should such a system be desired after the technology demonstration. This detailed review should be complete by December 1997.

Contributions to Air Force Core Competencies

The Air Force Long Range Plan stated that an SBL system could contribute to several Air Force core competencies, such as Air and Space Superiority, Precision Engagement, and Information Dominance. Prior to a decision to operationally deploy such a system several key policy and treaty issues would need to be resolved.

Discussion

There is approximately \$30M/yr of BMDO funding in the FY98 President's Budget.

The FY98 Authorization and Appropriation bills added \$98M and directed the funds applied toward a demonstration flight in FY05. The initial BMDO cost estimates for a FY05 on-orbit demonstration were approximately \$1.4B-\$1.8B. At this time, the Air Force believes the cost for the FY05 baseline system to be significantly higher. Hence the Air Force's desire to develop affordable technical alternatives consistent with Congressional direction and offering a growth path to an operationally useful system. The Air Force and BMDO are both currently working with the Office of the Secretary of Defense staff to have money programmed in their respective budgets to support the SBLRD. However this amount is expected to fall short of the amount needed to achieve a demonstrator flight in FY05.

Program Status

Technical - Key laser and beam control technologies have been demonstrated in laboratory conditions;

and acquisition, tracking, and pointing experiments are underway. The challenge will be to integrate the systems and operate them in a space environment.

Programmatic - As discussed above, the results of the Air Force assessment of technical alternatives and required funding profiles will be available in December 1997.

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Unmanned Aerial Vehicles (UAVs)

Key Messages

The Air Force uses a "system of systems" approach to ensure our nation's military forces receive the information necessary to conduct operations across the spectrum of conflict. The Unmanned Aerial Vehicle (UAV) is one platform supporting this need. In the near term, UAVs will perform intelligence, surveillance, and reconnaissance (ISR) missions.

In the mid term, the Air Force expects to exploit the technological promise of UAVs across the full range of missions, including areas such as communications relay and suppression-of-enemy-air-defense (SEAD) missions. The migration of additional missions to UAVs will depend upon technology maturation, affordability, and the evolution to other forms of warfare. We are currently focusing on operating the Predator medium altitude endurance (MAE) UAV.

Program Description and Key Points

Presently, the Air Force is working on three UAVs to perform ISR missions for the joint force, one currently operating and two under development.

The Predator is a medium-altitude endurance UAV designed to collect full-motion video and frame imagery with electro-optical, infrared, synthetic aperture radar (EO/IR/SAR) sensors all carried on board at the same time. The Predator's endurance is 24+ hours and will operate in a permissive threat environment. The ceiling is 25,000 feet, but Predator normally operates at 10,000 to 15,000 feet for optimum sensor coverage. Predator was the first Advanced Concept Technology Demonstration (ACTD) to transition to a formal acquisition program in 1997. The Predator has been used extensively in Europe supporting Bosnia operations since March 1996. Predator is assigned to the 11th and 15th Reconnaissance Squadrons at Indian Springs, Nevada.

The high-altitude endurance (HAE) UAVs, Global Hawk and DarkStar, are being developed by Advanced Research Projects Agency (DARPA) under a single ACTD. The ACTD also includes the development of a common ground station.

Global Hawk is designed to be a long-endurance ISR platform. The ACTD is developing the air vehicle and EO/IR/SAR imagery sensors to be carried on the vehicle. Global Hawk will be capable of operating at 65,000 feet with a maximum flight time of 40 hours. Speed is planned to be 350 knots. The payload is planned to be 1,800 pounds internal, but the design will accept hard points to carry two 1,000-pound pods for future sensor use. First flight is scheduled for Nov.

DarkStar is designed as a stealth platform that is highly survivable and designed to fly ISR operations in a high-threat environment. DarkStar will carry either an EO or a SAR sensor and will operate above 45,000 feet with a total endurance of approximately 12 hours. Its speed is planned to be greater than 250 knots. The first flight was 29 Mar 96. The second flight on 22 Apr 96 resulted in a crash result, the aircraft modified to increase stability and is scheduled to fly again early CY98.

Contribution to Air Force Core Competencies

Achieving *Information Superiority* is key to winning future battles. UAVs are envisioned to be an integral part of the Intelligence, Surveillance and Reconnaissance system providing critical information to the warfighter. As UAV technologies advance, we will explore the possibility of using unmanned vehicles to support other Air Force core competencies.

Discussion

A key issue facing the Air Force in the near future is determining the most combat-effective mix of manned and unmanned systems for the total force structure. Some missions likely will be performed better by one type of system or the other. We must be careful not to abandon manned systems until UAVs prove themselves. UAVs have several basic advantages over manned systems including long endurance and no risk to crews. Where these attributes are key, UAVs may be the platform of choice. The Air Force and the Joint Requirements Oversight Council's UAV Special Studies Group are examining follow-on payloads for all UAVs, including sensors for signal intelligence, hyperspectral imagery, and foliage penetration.

Program Status

The Predator ACTD ended 30 Jun 96. Predator Initial Operational Capability (IOC) is planned for, with Final Operational Capability (FOC) planned for the quarter FY99. The Global Hawk and DarkStar ACTD runs through 31 Dec 99. There is no planned IOC/FOC for these vehicles yet. The decision to pursue both the Global Hawk and DarkStar will be made as results of their ACTD are known.

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